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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,481	09/23/2003	Meirav Raz	P-5503-US	9065

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EXAMINER

BAKER, PAUL A

ART UNIT PAPER NUMBER

2188

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,481

Applicant(s)

RAZ ET AL.

Examiner

Paul A. Baker

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1,4-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1 and 4 recite the limitation "...in said NVM array the ECC and the *block of bits from which the ECC was not derived*" (emphasis added by examiner). The only mention of this feature is in element 1000 of figure 8, however this is not sufficient to enable one of ordinary skill in the art to make and use the claimed invention. More specifically, it is not understood what the applicant specifically intends by this limitation. The examiner believes the applied art reads upon this limitation, but cannot be certain given applicant's disclosure, as such this limitation has not been fully considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al., US PG PUB 2003/0135798.

In regards to Claim 1, Katayama discloses a method of storing bits on a Non-Volatile Memory ("NVM") in figure 17 comprising:

receiving a block of bits in a specific order in element 311;

rearranging the order of the bits in the received block according to a spreading pattern in element 309;

generating an error correction code ("ECC") based on either the original block of bits or based on the rearranged block of bits in element 307; and

storing in said NVM array the ECC and the block of bits in element 303.

Katayama does not disclose that the NVM is an array type of memory; Katayama rather discloses the method is used on optical rewritable disks, which is a linear NVM. Katayama discloses the method is used to extend the number of rewritable times of the memory media in paragraph 13 2nd sentence. Applicant's invention is drawn to scrambling the bits of data stored to a NVM array to reduce the number of errors of the array. It is well known in the art that the primary cause for such errors in an NVM array are due to the limited number of rewrites that can be performed on a memory location of the array. Therefore it would have been obvious to one of ordinary skill in the art to apply Katayama's method of scrambling the bits to an array type NVM in order to extend the number of times the memory can be reliably rewritten.

In regards to claim 2, Katayama discloses a method of reading a block of bits stored in a rearranged order according to a spreading pattern on a Non-Volatile Memory ("NVM") in figure 17 comprising:

rearranging the stored block with an inverse-spreading pattern and manipulating the block with an error correction code ("ECC") generated prior to the block being rearranged according to a spreading pattern and stored in elements 310 and 308.

Katayama does not disclose that the NVM is an array type of memory; Katayama rather discloses the method is used on optical rewritable disks, which is a linear NVM. Katayama discloses the method is used to extend the number of rewritable times of the memory media in paragraph 13 2nd sentence. Applicant's invention is drawn to scrambling the bits of data stored to a NVM array to reduce the number of errors of the array. It is well known in the art that the primary cause for such errors in an NVM array are due to the limited number of rewrites that can be performed on a memory location of the array. Therefore it would have been obvious to one of ordinary skill in the art to apply Katayama's method of scrambling the bits to an array type NVM in order to extend the number of times the memory can be reliably rewritten.

In regards to claim 3, Katayama discloses a method of reading a block of bits stored on a Non-Volatile Memory ("NVM") in figure 3 along with an error correction code ("ECC"), which ECC is based on the block of bits after being rearranged by a spreading pattern via elements 309 and 307, said method comprising:

rearranging the stored block with the spreading pattern and manipulating the rearranged block with the stored ("ECC") in element 310; and

rearranging the manipulated block of data with an inverse-spreading pattern is inherent since element 310 must perform the inverse function of 309 in order to retrieve the data in its original form.

Katayama does not disclose that the NVM is an array type of memory; Katayama rather discloses the method is used on optical rewritable disks, which is a linear NVM. Katayama discloses the method is used to extend the number of rewritable times of the memory media in paragraph 13 2nd sentence. Applicant's invention is drawn to scrambling the bits of data stored to a NVM array to reduce the number of errors of the array. It is well known in the art that the primary cause for such errors in an NVM array are due to the limited number of rewrites that can be performed on a memory location of the array. Therefore it would have been obvious to one of ordinary skill in the art to apply Katayama's method of scrambling the bits to an array type NVM in order to extend the number of times the memory can be reliably rewritten.

In regards to claim 4, Katayama discloses a control circuit for storing bits of a data block on a Non-Volatile Memory ("NVM") in figure 17, said circuit comprising:

a bit scrambling block adapted to rearrange the bit of the data block according to a spreading pattern in element 309;

an Error Correction Coding ("ECC") block adapted to generate an ECC based on either the original data block or on the rearranged data block in element 307; and

an NVM storing circuit adapted to store in said NVM array the ECC and the block of bits in element 303.

Katayama does not disclose that the NVM is an array type of memory; Katayama rather discloses the method is used on optical rewritable disks, which is a linear NVM. Katayama discloses the method is used to extend the number of rewritable times of the memory media in paragraph 13 2nd sentence. Applicant's invention is drawn to scrambling the bits of data stored to a NVM array to reduce the number of errors of the array. It is well known in the art that the primary cause for such errors in an NVM array are due to the limited number of rewrites that can be performed on a memory location of the array. Therefore it would have been obvious to one of ordinary skill in the art to apply Katayama's method of scrambling the bits to an array type NVM in order to extend the number of times the memory can be reliably rewritten.

In regards to claim 5, Katayama discloses reading circuit adapted to read a stored block of bits from the NVM array in element 304.

In regards to claim 6, Katayama discloses a de-scrambler adapted to rearrange a block of bits stored according to spreading pattern in element 310.

In regards to claim 7, Katayama discloses the ECC block is adapted to manipulate the de-scrambled block of data according to an ECC which is based on the original data block prior to scrambling in elements 307-309.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Baker whose telephone number is (571)272-4203. The examiner can normally be reached on M-F 10am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571)272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PB



MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER